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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,947	01/03/2002	William R. Freund JR.	1787-12700	2139

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EXAMINER

LAU, TUNG S

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/038,947

Applicant(s)

FREUND ET AL.

Examiner

Tung S Lau

Art Unit

2863

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 10-12, 14, 17 and 19-23 is/are rejected.
- 7) ☒ Claim(s) 13, 15, 16, 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22, 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Motegi et al. (U.S. Patent 4,930,358).

Regarding claim 22:

Motegi discloses an ultrasonic meter comprising: a first transducer pair to generate and receive a first set of ultrasonic signals (fig. 2); a second transducer pair to generate and receive a second set of ultrasonic signals (col. 3, lines 3-25); means for measuring transit times for said first set of ultrasonic signals and said second set of ultrasonic signals (fig. 2); means for determining transit time measurement errors in said measured transit times for said first set of ultrasonic signals and said second set of ultrasonic signals (col. 8, lines 14-23).

Regarding claim 23:

Motegi discloses the correction of the error (Col. 8, Lines 14-28).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

a. Claims 10, 20, 11, 12, 14, 17, 19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motegi et al. (U.S. Patent 4,930,358) in view of Sato (U.S. Patent 5,280,728).

Regarding claim 10:

Motegi discloses an ultrasonic metering system, comprising: a first transducer pair defining a first ultrasonic path having a first path length (abstract, fig. 1, unit 3); a second transducer pair defining a second ultrasonic path having a second path length (col. 8, lines 14-23); one or more processors associated with said first and second transducer pairs (fig. 1, unit 19), said one or more processors suitable to determine a first transit time measurement for ultrasonic signals across said first ultrasonic path and a second transit time measurement for ultrasonic signals across said second ultrasonic path (fig. 2,3, 5), wherein said processor is programmed to identify simultaneously measurement errors in said first and second transit time measurements (fig. 8, col. Lines 14-23).

Regarding claim 20:

Art Unit: 2863

Motegi discloses a method to determine transit time measurement errors in an ultrasonic meter, comprising a) measuring a first transit time for one or more ultrasonic signals along a first path in a pipeline(col. 2, lines 55-63); b) measuring a second transit time for one or more ultrasonic signals along a second path in said pipeline (col. 2-3, lines 64-25), said second path being of different length than said first path (col. 8, lines 14-23); C) a step for determining transit time measurement errors in an ultrasonic meter (fig. 7).

Regarding claims 11, 12, 14, 17, 19, 21:

Motegi discloses a method to detect a selection error in a waveform, including computing the size and direction of error (fig. 7, 8);;  $n = (L_b \cdot T_a / \Delta L) - (L_a \cdot T_b / \Delta L)$  (fig. 8);  $L_A$ ,  $L_B$ = length of the chord a,b,  $T_a$ ,  $T_b$ = time of ultrasonic signal in a, b,  $\Delta L = L_b - L_a$  (fig. 8); is less than one period of the ultrasonic signal; included the speed of sound calculation (abstract), error can be positive (fig. 8), identifies error using transient time of the path (fig. 8), use on a pipeline (fig. 1).

Motegi does not disclose the calculation of average signal, Sato disclose the calculation of average signal (Col. 3, Lines 5-31), in order to measure in a high temperature and pressure efficiently and high degree of accuracy (Col. 2-3, Lines 65-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Motegi to have the calculation of average signal

Art Unit: 2863

taught by Sato in order to measure in a high temperature and pressure efficiently and high degree of accuracy (Col. 2-3, Lines 65-4).

### ***Claim Objection***

3. Claims 13, 15, 16, 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: prior art fail to teach the predetermined value is less than one period of the ultrasonic signal, the use of equation  $n = (L_b * L_a (C_a - C_b)) / (\Delta L * C_a * C_b)$ , if the absolute value of n is greater than a predetermined value.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Allowable Subject Matter***

4. Claims 1-9 are allowed.

### ***Reasons for Allowance***

5. The following is an examiner's statement of reasons for allowance:

Art Unit: 2863

Independent claim 1 contains allowable subject matter. None of the prior art of record shows or fairly suggests the claimed invention.

Regarding claim 1:

The primary reason for the allowance of claim 1 is the inclusion of the method to detect a peak selection error in a waveform including determining whether there exist a peak selection error based on the length of first path and first average transit time and second average transit time. It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Claims 2-9 are allowed due to their dependency on claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 703-305-3309.

The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 703-308-3126. The fax phone numbers for

Art Unit: 2863

the organization where this application or proceeding is assigned are 703-308-5841 for regular communications and 703-308-5841 for After Final communications.

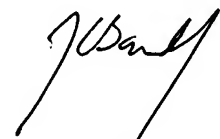
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TC2800 RightFAX Telephone Numbers : TC2800 Official Before-Final RightFAX - (703) 872-9318, TC2800 Official After-Final RightFAX - (703) 872-9319

TC2800 Customer Service RightFAX - (703) 872-9317

TL

September 4, 2003



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